

REMARKS

In this response, Applicants do not amend or cancel any claims. Applicants do not add any new claims. Accordingly, Claims 1-28 are pending.

I. Claims Rejected Under 35 U.S.C. §102(e)

The Examiner rejects Claims 1-8, 10-17, 19, 22-24, 27 and 28 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,311,294 to Larky, et al. ("Larky").

In order to anticipate a claim, the relied upon reference must disclose every limitation of the claim. Among other limitations, independent Claims 1 and 10 both recite counting flow control events issued by individual endpoints. Similarly, independent Claims 19 and 24 both recite a counter to count flow control events issued by endpoints coupled to a bus. Applicants submit that at least these limitations are not disclosed by Larky.

In making the rejection, the Examiner relies on Larky to show a bus master 12 to control transactions on a bus, a schedule to contain information about a plurality of endpoints coupled to the bus, and a counter to count flow control events issued by the endpoints such that the bus master suspends service to an endpoint that has issued a threshold number of flow control events.

In response, Applicants first note that Larky fails to disclose a counter that counts flow control events (e.g., NAKs) or any other mechanism used to count flow control events issued by endpoints, as recited in Applicants' independent claims. Specifically, Larky employs a timer to measure the amount of time during which a device has no bulk data to send (e.g., represented by sending NAKs instead). Once the device has been sending NAKs for a predetermined period of time, the device will send a signal to the host to stop sending IN tokens (e.g., data requests) until the device sends a data available signal (Col. 3, lines 24-30). Thus, Larky does not disclose the use of a counter or any other mechanism to count the actual number of flow control events issued by each endpoint, as recited in Applicants' independent claims.

Instead, Larky uses a timer by which the system elects to no longer send data requests to the dry device. Such a configuration can potentially result in various devices being prematurely denied service by the host if the device is timed out too early. For example, if a large number of devices are connected to the bus, and the first device sends a NAK, the timer for that device will begin counting. Due to the large number of devices on the bus and perhaps different latency periods of each of those devices, it may take the host a significant amount of time to send data requests to each device on the bus such that the first device may timeout prematurely even though it has only sent one NAK.

Such a problem would not occur with the methods and devices recited in Applicants' independent claims, which each give additional granularity to the system by requiring a specific threshold number of flow control events that must be counted prior to suspending service to a specific endpoint. Such granularity and the efficiencies derived therefrom cannot be achieved by following the teachings of Larky. Therefore, Larky fails to disclose every limitation of Applicants' independent claims.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claims 1, 10, 19 and 24. Claims 2-8, 11-17, 22, 23, 27 and 28 are each respectively dependent on independent Claims 1, 10, 19 and 24. Therefore, the rejected dependent claims are not anticipated at least for the same reasons as their respective independent claims.

The Examiner rejects Claims 1-19, 22-24, 27 and 28 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,073,193 to Yap ("Yap").

In making the rejection, the Examiner relies on Yap to show a bus master 2, 10 to control transactions on a bus, a schedule to contain information about a plurality of endpoints coupled to the bus, and a counter to count flow control events issued by the endpoint such that the bus master suspends service to an endpoint that has issued a threshold number of flow control events.

In response, Applicants first note that, similar to Larky, Yap fails to disclose a counter to count the number of NAKs issued by an endpoint, as recited in Applicants' independent Claims 1, 10, 19 and 24. Rather, Yap discloses a system for disconnecting certain data lines in order to

recover from a USB device brown out condition (Col. 2, lines 6-9; Col. 5, lines 53-63). The counter used by Yap is incremented based on how long a USB microcontroller has been busy, which is not the same as counting the number of flow control events issued by a specific device or endpoint. Rather, the examples and embodiments disclosed by Yap only teach counting the number of milliseconds during which a specific microcontroller is busy, and once a threshold time period has been reached, the data lines of that specific USB microcontroller are disconnected for a predetermined amount of time and then re-connected (Col. 5, lines 53-63; Col. 6, lines 24-32). Thus, Yap's disclosure of disconnecting and reconnecting data lines of a USB microcontroller once the microcontroller has been busy for a predetermined amount of time is not the same as the limitations recited in Applicants' independent claims. Therefore, Yap fails to disclose every limitation of Applicants' independent claims.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claims 1, 10, 19 and 24. Claims 2-9, 11-18, 22, 23, 27 and 28 depend from independent Claims 1, 10, 19 and 24, respectively. Therefore, the rejected dependent claims are not anticipated at least for the same reasons as their respective independent claims.

II. Claims Rejected Under 35 U.S.C. §103(a)

The Examiner rejects Claims 8 and 18 under 35 U.S.C. 103(a) as being obvious over Larky. As the rejection of Claims 8 and 18 is directed towards a very specific limitation (e.g., 10 microseconds), which is not found in Claim 8, Applicants will treat the foregoing rejection as pertaining to Claims 9 and 18.

Claims 9 and 18 depend from independent Claims 1 and 10, respectively. The rejected dependent claims are not obvious at least for the same reasons as their respective independent claims. Specifically, Claims 9 and 18 both recite counting flow control events issued by individual endpoints, which, as discussed above, is neither taught nor suggested by Larky. Therefore, at least this limitation of Claims 9 and 18 is not obvious over Larky.

Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 9 and 18.

The Examiner rejects Claims 20, 21, 25 and 26 under 35 U.S.C. 103(a) as being obvious over Larky.

In making the rejection, the Examiner relies on Larky as described above. However, the Examiner acknowledges that Larky does not particularly disclose using a circular counter or a linear counter. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a circular counter or a linear counter for the counter of Larky since the Examiner takes Official Notice that circular and linear counters are old and well known.

In response, Applicants first challenge the Official Notice and respectfully request supportive documentation to prove that circular and linear counters are well known in the art. However, even if the Examiner is able to provide such documentation, Applicants submit that there is no motivation to use the circular or linear counter in combination with Larky since Larky merely times how long a specific device is unable to send data to a host. Once the predetermined amount of time has elapsed, the device sends a dry signal to the host to indicate that the host should stop sending IN tokens (e.g., data requests) until the device sends a data available signal.

A circular or linear counter, as described and shown in Applicants' specification at page 3, lines 23-25, would have no use in combination with the system of Larky, which does not continue counting once the device sends the dry signal. Rather, the timer in Larky, along with the data requests, are stopped until such time as the device sends a new data available signal. Therefore, this limitation is also neither taught nor suggested by Larky.

Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 20, 21, 25 and 26.

The Examiner rejects Claims 20, 21, 25 and 26 under 35 U.S.C. 103(a) as being obvious over Yap.

In making the rejection, the Examiner relies on Yap, as described above, noting that Yap does not particularly disclose the use of a circular or linear counter. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to

select a circular counter or linear counter for the counter of Yap. The Examiner takes Official Notice that circular and linear counters are old and well known in the art and offers to provide supportive documentation if the Applicants challenge the fact that linear and circular counters are old and well known.

As described above, Applicants challenge the Official Notice and respectfully request supportive documentation to prove the Examiner's assertion that circular and linear counters are old and well known. Moreover, there is no motivation to use a circular or linear counter as described in Applicants' specification in combination with the system disclosed in Yap. For example, Yap merely discloses the use of a timer to count how long a particular microcontroller has been busy so that the data lines of that microcontroller can be reset if the microcontroller is busy for a predetermined amount of time. Thus, there is no reason or motivation to use a circular or linear counter in such a configuration in which the data lines of the microcontroller are automatically reset once a predetermined amount of time has elapsed. Thus, at least this limitation is also neither taught nor suggested by Yap.

Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 20, 21, 25 and 26.

CONCLUSION


In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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CERTIFICATE OF MAILING:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450, on October 27, 2003.


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